WHAT IS CLAIMED IS:

1. An apparatus for adaptively detecting received signals for power line communication, comprising:

a main control unit (MCU) interface unit for adjusting a timing of data transmission;

a register unit for storing control data, a threshold value, an offset value, and an error rate received from said MCU interface unit, and for outputting the stored data and values;

a control logic unit for controlling a selection of a threshold value, based on the control data stored in said register unit;

a reference data selecting unit for selectively outputting, as threshold values, the threshold value and offset value respectively stored in said register unit or an external threshold value and an external offset value, under control of said control logic unit; and

a data processing unit for determining, based on threshold values to be selectively outputted by said reference data selecting unit, whether or not the serial data received via a power line is effective data, and for outputting the received data.

2. The apparatus for adaptively detecting received signals according to claim 1, wherein the data processing unit comprises:

a data shift unit for shifting the serial data received via the power line, thereby outputting the data in parallel;

a comparing unit for comparing the output signal from said data shift unit with the offset value selectively outputted from said reference data selecting unit;

a first compressing unit for compressing an output signal from said comparing unit;

a second compressing unit for re-compressing an output signal from said first compressing unit;

a summing unit for summing output signals from said second compressing unit; and

a determining unit for comparing an output signal value from said summing unit with the threshold value selectively outputted from said reference data selecting unit, thereby determining whether or not the output signal value from the summing unit is effective data, and for transmitting the determined value to the MCU.

3. A method for adaptively detecting a received signals for power line communication comprising the steps of:

(a) receiving control data, a threshold value, an offset value, and an error rate from a main control unit (MCU), storing the received data and values, and then waiting for receiving serial data via a power line;

(b) if serial data is received at said step (a), then determining, based on the threshold value and offset value, whether or not the received serial data is effective data;

(c) if it is determined at said step (b) that the received serial data is effective data, then outputting a determination value of effective data;

(d) if it is determined at said step (b) that the received serial data is ineffective data, then incrementing the number of errors; and

(e) if the number of errors incremented at said step (d) is not less than a predetermined allowance value, re-setting the threshold value and offset value as a new threshold value and a new offset value.

4. The method for adaptively detecting received signals according to claim 3, wherein said step (b) comprises the steps of:

(b-1) converting the received serial data into parallel data, and then comparing the parallel data with said offset value;

(b-2) compressing signals obtained after the comparison at said step (b-1), and summing

the compressed signals; and

(b-3) comparing the signal obtained after the summing at said step (b-2) with the threshold value, thereby determining whether or not the received serial data is effective data.